



## **WORCESTER REGIONAL RETIREMENT SYSTEM**

### **ACTUARIAL VALUATION as of**

**January 1, 2014**

Prepared by:

Linda L. Bournival, FSA  
KMS Actuaries, LLC  
Fellow, Society of Actuaries  
Enrolled Actuary  
Member, American Academy of Actuaries



December 12, 2014

Worcester Regional Retirement Board  
Midstate Office Park  
23 Midstate Drive, Suite 106  
Auburn, MA 01501

Dear Board Members:

We are pleased to present the enclosed report summarizing the results of our actuarial valuation of the Worcester Regional Retirement System as of January 1, 2014.

Our valuation was performed in accordance with the provisions contained in Chapter 32 of the Massachusetts General Laws, "M.G.L.", as of January 1, 2014 and GASB Statement No. 25, Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans (GASB 25) and GASB Statement No. 27, Accounting for Pensions by State and Local Governmental Employers (GASB 27).

The principal results of our valuation are summarized in Section 2. The summary of Plan provisions and actuarial methods and assumptions are shown in Sections 5 and 6, respectively. Section 7 summarizes the demographic profile of active members and retired plan members. Asset information and actuarial liabilities are presented in Section 2. The development of the required appropriations pursuant to Chapter 32 of the M.G.L. is shown in Section 3. The required disclosures under GASB 25, GASB 27 and PERAC are presented in Section 4.

We also provide a 30-year forecast of the required appropriations and cash flows in Section 3.

Our actuarial valuation is based on an investment return rate of 8%, compounded annually. Our calculations were based on participant census and asset data and other information provided by the Worcester Regional Retirement System and the benefit provisions of Chapter 32 of the M.G.L. as of January 1, 2014.

Our valuation follows generally accepted actuarial methods and we perform such tests as we consider necessary to assure the accuracy of the results. The amounts presented in this report have been appropriately determined according to the actuarial assumptions and methods stated herein.

We appreciate this opportunity to be of service to the Worcester Regional Retirement Board. We are available to answer any questions with respect to our valuation.

Respectfully submitted,

A handwritten signature in black ink that reads "Linda Bournival". The signature is written in a cursive, flowing style.

---

Linda L. Bournival, FSA  
Member, American Academy of Actuaries

---

## **TABLE OF CONTENTS**

<b>ACTUARIAL CERTIFICATION</b>	<b>1</b>
<b>SECTION 1 - SUMMARY</b>	<b>2</b>
<b>SECTION 2 - PRINCIPAL VALUATION RESULTS</b>	<b>6</b>
Exhibit 2.1 - PLAN ASSETS	
Exhibit 2.2 - ACTUARIAL PRESENT VALUE OF FUTURE BENEFITS	
Exhibit 2.3 - ACTUARIAL ACCRUED LIABILITY	
Exhibit 2.4 - NORMAL COST	
Exhibit 2.5 - UNFUNDED ACTUARIAL ACCRUED LIABILITY	
Exhibit 2.6 - ACTUARIAL EXPERIENCE	
<b>SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS</b>	<b>12</b>
Exhibit 3.1 - ANNUAL APPROPRIATIONS	
Exhibit 3.2 - 30-YEAR FORECAST OF ANNUAL APPROPRIATIONS	
Exhibit 3.3 - 30-YEAR FORECAST OF CASH FLOW	
<b>SECTION 4 - REQUIRED DISCLOSURES</b>	<b>16</b>
GASB 25 AND GASB 27 DISCLOSURES	
PERAC DISCLOSURE INFORMATION	
<b>SECTION 5 - SUMMARY OF PLAN PROVISIONS</b>	<b>18</b>
<b>SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS</b>	<b>23</b>
<b>SECTION 7 - PLAN MEMBER INFORMATION</b>	<b>26</b>
Exhibit 7.1 - ACTIVE MEMBERS BY AGE and YEARS OF SERVICE	
Exhibit 7.2 - RETIRED PLAN MEMBERS and BENEFICIARIES	
Exhibit 7.3 - DISABLED PLAN MEMBERS	
<b>SECTION 8 - GLOSSARY OF TERMS</b>	<b>29</b>
<b>SECTION 9 - MEMBER UNIT FY2016 APPROPRIATION</b>	<b>31</b>

---

## ACTUARIAL CERTIFICATION

This report presents the results of the Actuarial Valuation for the Worcester Regional Retirement System as of January 1, 2014. The report presents the funding schedule contribution amounts for the fiscal years beginning 2015 and accounting and financial reporting information in accordance with Statement Numbers 25 and 27 of the Governmental Accounting Standards Board.

This valuation is based upon member data provided by the Retirement Board and asset information reported to the Public Employee Retirement Administration Commission (PERAC) by the Worcester Regional Retirement System. Although we did not audit the data used in the valuation, we believe that the information is complete and reliable.

This report was completed in accordance with generally accepted actuarial standards and procedures, and conforms to the Code of Professional Conduct of the American Academy of Actuaries. The actuarial assumptions used in the determination of costs are reasonably related to the experience of the System and to reasonable expectations, and represent our best estimate of anticipated long-term experience under the System.

Future actuarial valuation results may differ significantly from the current results presented in this report. Examples of potential sources of volatility include plan experience differing from that anticipated by the economic or demographic assumptions, the effect of new entrants, changes in economic or demographic assumptions, the effect of law changes and the delayed effect of smoothing techniques.

This report is intended for the sole use of the Worcester Regional Retirement System and is intended to provide information to comply with the stated purpose of the report. It may not be appropriate for other purposes.

The undersigned credentialed actuaries are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinion contained herein. They are available to answer any questions with regard to this report.

Respectfully submitted,



---

Linda L. Bournival, FSA  
Member, American Academy of Actuaries  
(603) 792-9494



---

David M. Mirabito, FSA  
Member, American Academy of Actuaries  
(978) 766-5532

---

## SECTION 1 - SUMMARY

### Background

We have completed the Actuarial Valuation of the Worcester Regional Retirement System as of January 1, 2014. This valuation is based upon census data provided by the Retirement Board and asset information reported to the Public Employee Retirement Administration Commission (PERAC) by the Worcester Regional Retirement Board. Information for the prior valuation completed as of January 1, 2012 was obtained from the valuation report prepared by KMS Actuaries, LLC.

### Massachusetts General Laws

The valuation was prepared in accordance with Chapter 32 of the Massachusetts General Laws ("M.G.L."). The results are based on the active, inactive and retired members and beneficiaries as of January 1, 2014, the assets as of December 31, 2013 and assumptions regarding investment returns, salary increases, death, turnover, disability and retirement.

The valuation does not take into consideration:

- Changes in the law after the valuation date,
- State-mandated benefits and
- Cost-of-living increases granted to members in pay status between 1982 and 1997.

### GASB Statement Numbers 25 and 27

The Governmental Accounting Standards Board (**GASB**) is responsible for establishing accounting standards for governmental entities. Calculations developed in accordance with GASB standards are required when providing financial statements.

GASB Statement Number 25 (**GASB 25**) establishes financial reporting standards for defined benefit pension plans of state and local governmental entities. The Statement establishes a framework that distinguishes between two categories of information: current financial information about plan assets and financial activities and actuarially determined information about the funded status of the plan and the progress being made in accumulating sufficient assets to pay benefits when due.

GASB Statement Number 27 (**GASB 27**) establishes standards for the measurement, recognition, and display of pension expense and related liabilities, assets, note disclosures, and, if applicable, required supplementary information in the financial reports of state and local governmental employers. Employers are required to measure and disclose an amount for annual pension cost on the accrual basis of accounting, regardless of the amount recognized as pension expense on the accrual basis. Annual pension cost should be equal to the employer's Annual Required Contribution (ARC) to the plan.

The required disclosures under the GASB Statements are presented in Section 4.

---

## SECTION 1 - SUMMARY

### **GASB Statement Numbers 67 and 68**

In June 2012, the GASB approved two related Statements that significantly change the way pension plans and governments will account and report pension liabilities. Effective for plans with fiscal years beginning after June 15, 2013, GASB Statement No. 67, Financial Reporting for Pension Plans, replaces the requirements of Statement No. 25 and effective for employers with fiscal years beginning after June 15, 2014, GASB Statement No. 68, Accounting and Financial Reporting for Pensions, replaces the requirements of Statement No. 27.

The new pension standards reflect changes from those currently in place regarding how governments calculate total pension liability and pension expense. Further, the new standards contain requirements for disclosing information in the notes to financial statements and presenting required supplementary information following the notes.

The required disclosures and notes under the new GASB Statements for the fiscal year ending December 31, 2014 will be provided in a separate report.

### **Actuarial Valuation**

During the two years since the last valuation, the total unfunded actuarial accrued liability of the System was expected to increase from \$546,124,800 as of January 1, 2012 to \$565,741,836 as of January 1, 2014, for a total increase of \$19,617,036. The actual unfunded actuarial accrued liability, before any assumption or plan changes, was \$583,636,708, resulting in an actuarial loss of \$17,894,872. The actuarial loss was primarily due to an asset loss of \$23,105,172 and a demographic experience gain of \$5,210,300. The details of the gain and loss analysis are provided in Exhibit 2.6.

### **Appropriations**

The funding appropriation for each year is computed as the sum of the normal cost, net 3(8)(c) transfers and an amortization payment to pay off the Unfunded Actuarial Liability, adjusted for semi-annual payments of the appropriation made July 1 and January 1. The appropriation calculated as of the January 1, 2014 valuation is \$49,673,340, and is made up of a normal cost payment of \$7,134,320, net 3(8)(c) transfers of \$1,660,000, and an amortization payment of \$40,879,020. The amortization method is an increasing amortization of the unfunded actuarial accrued liability at 4% over 21 years and is expected to fully pay the unfunded actuarial accrued liability by the year 2035. The development of the appropriation as of January 1, 2014 is presented in Exhibit 3.1.

For fiscal year 2015, we show the actual appropriation developed under the previous funding schedule and reported on the PERAC "Required Fiscal Year 2015 Appropriation" letter dated December 2, 2013 of \$40,135,980. For fiscal year 2016, we developed an annual appropriation of \$43,346,858, which is made up of a normal cost and net 3(8)(c) transfers of \$9,293,514 and payment toward the unfunded actuarial accrued liability (including payments for the Early Retirement Incentives) of \$34,053,344. The unfunded actuarial accrued liability is expected to be fully paid by 2035. The current funding schedule is shown in Exhibit 3.2.

Worcester Regional Retirement System  
Actuarial Valuation as of January 1, 2014

## SECTION 1 - SUMMARY

A summary of principal valuation results from the current valuation and the prior valuation follows. Changes in actuarial assumptions and methods and Plan provisions are discussed below, as well as changes in census data and asset information.

Valuation Date	<u>1/1/2014</u>	<u>1/1/2012</u>	<u>Increase/ (Decrease)</u>
<b>Summary of Member Data</b>			
Active Members	6,411	6,377	0.5%
Average Age	48.2	47.8	0.8%
Average Service	10.5	10.4	1.0%
Valuation Salary	\$252,829,591	\$238,952,079	5.8%
Average Salary	\$39,437	\$37,471	5.2%
Retired Members and Beneficiaries	2,840	2,742	3.6%
Average Age	74.1	74.1	0.0%
Total Annual Pension	\$49,183,380	\$43,108,572	14.1%
Average Annual Pension	\$17,318	\$15,722	10.2%
State Reimbursed COLAs	\$506,325	\$577,706	(12.4%)
Total System-Funded Pension	\$48,677,055	\$42,530,866	14.5%
Disabled Members	247	233	6.0%
Average Age	63.5	63.1	0.6%
Total Annual Pension	\$7,134,240	\$6,335,254	12.6%
Average Annual Pension	\$28,884	\$27,190	6.2%
State Reimbursed COLAs	\$106,602	\$120,193	(11.3%)
Total System-Funded Pension	\$7,027,638	\$6,215,061	13.1%
Inactive Members	1,711	1,874	(8.7%)
Annuity Savings Fund	\$12,940,975	\$10,996,041	17.7%
<b>Actuarial Accrued Liability (AAL)</b>	<b>\$1,087,769,903</b>	<b>\$982,796,782</b>	<b>10.7%</b>
<b>Assets</b>			
Market Value of Assets	\$512,236,584	\$396,103,870	29.3%
Actuarial Value of Assets	488,346,471	436,671,982	11.8%
<b>Unfunded Accrued Liability</b>	<b>\$599,423,432</b>	<b>\$546,124,800</b>	<b>9.8%</b>
<b>Funded Status</b>	<b>44.9%</b>	<b>44.4%</b>	<b>1.1%</b>
<b>Normal Cost</b>			
Employer	\$6,134,320	\$8,067,437	(24.0%)
Employee	23,492,514	20,400,686	15.2%
Administrative Expenses	1,000,000	0	0.0%
Total Normal Cost	\$30,626,834	\$28,468,123	7.6%

Worcester Regional Retirement System  
Actuarial Valuation as of January 1, 2014



## SECTION 1 - SUMMARY

Valuation Date	<u>1/1/2014</u>	<u>1/1/2012</u>	<u>Increase/ (Decrease)</u>
<b>Appropriations</b>			
Fiscal Year 2014	N/A	\$37,510,266	N/A
Fiscal Year 2015	\$40,135,980	\$40,135,980	0.0%
Fiscal Year 2016	\$43,346,858	\$43,346,858	0.0%
Fiscal Year 2017	\$46,814,607	\$46,814,607	0.0%

### Actuarial Assumptions and Methods

Some Actuarial Assumptions and Methods used in this valuation have been changed since the last valuation, including mortality improvement applied to the RP-2000 Mortality Table projected to 2014 (previously projected to 2012) and providing for plan expenses and net 3(8)(c) transfers. Changing these assumptions resulted in a net increase in the unfunded actuarial accrued liability of \$3,688,213 and an increase in the employer normal cost of \$35,879. The Actuarial Assumptions and Methods utilized in this valuation are detailed in Section 6, Actuarial Assumptions and Methods.

### Plan Provisions

Chapter 176 of the Acts of 2011 was incorporated in this valuation, which changes many of the benefit features for members hired on or after April 2, 2012. In addition, subject to the provisions contained in Section 22F(d) of Chapter 32, the maximum base amount on which the cost-of-living adjustment is calculated was increased to \$16,000, effective July 1, 2015. Changing these plan provisions resulted in a net increase in the unfunded actuarial accrued liability of \$12,098,511 and an increase in the employer normal cost of \$268,199. The Plan provisions utilized in this valuation are detailed in Section 5, Summary of Plan Provisions.

### Census Data

As of January 1, 2014, there are 6,411 active members who may be eligible for benefits in the future, 2,840 retirees and beneficiaries, 1,711 inactives and 247 disabled retirees. Summaries of the active, retired and disabled employees are included in Section 7, Demographic Information.

### Assets

This valuation is based upon asset information reported to the Public Employee Retirement Administration Commission (PERAC) by the Worcester Regional Retirement Board. The market value of assets increased from \$396,103,870 as of January 1, 2012 to \$512,236,584 as of January 1, 2014. During the plan years ended 2012 and 2013, the market value rates of return were 12.85% and 14.11%, respectively.

The actuarial value of assets increased from \$436,671,982 as of January 1, 2012 to \$488,346,471 as of January 1, 2014. During the plan years ended 2012 and 2013, the rates of return on the actuarial value of assets were 1.05% and 10.19%, respectively.

Worcester Regional Retirement System  
Actuarial Valuation as of January 1, 2014

## SECTION 2 - PRINCIPAL VALUATION RESULTS

### Exhibit 2.1 - Plan Assets

Asset information is reported annually to the Public Employee Retirement Administration Commission by the Worcester Regional Retirement System. The Market Value of Assets for the two most recent calendar years are as follows:

Calendar Year	2013	2012
<b>Trust Fund Composition at Year-End</b>		
Cash	\$5,807,265	\$4,390,502
Short-Term Investments	0	0
Fixed Income Securities	0	0
Equities	0	0
Pooled Short Term Funds	0	0
Pooled Domestic Equity Funds	0	0
Pooled International Equity Funds	0	0
Pooled Global Equity Funds	0	0
Pooled Domestic Fixed Income Funds	0	0
Pooled International Fixed Income Funds	0	0
Pooled Global Fixed Income Funds	0	0
Pooled Alternative Investments	11,389,463	11,238,998
Pooled Real Estate Funds	14,018,207	16,582,706
Pooled Domestic Balanced Funds	0	0
Pooled International Balanced Funds	0	0
Hedge Funds	0	0
PRIT Cash	0	0
PRIT Fund	479,684,308	413,742,500
Interest Due & Accrued	0	0
Prepaid Expenses	0	0
Accounts Receivable	1,346,904	1,013,647
Land	0	0
Buildings	0	0
Accumulated Depreciation - Buildings	0	0
Accounts Payable	(9,563)	(8,797)
Total Market Value of Assets	<u>\$512,236,584</u>	<u>\$446,959,556</u>

## SECTION 2 - PRINCIPAL VALUATION RESULTS

### Exhibit 2.1 - Plan Assets

Calendar Year	2013	2012
<b>Funds</b>		
Annuity Savings Fund	\$227,608,445	\$217,843,755
Annuity Reserve Fund	52,872,661	49,715,510
Special Military Service Fund	110,954	96,272
Pension Fund	5,855,728	8,175,873
Expense Fund	0	0
Pension Reserve Fund	225,788,796	171,128,146
Total Market Value of Assets	<u>\$512,236,584</u>	<u>\$446,959,556</u>
<b>Asset Activity</b>		
Market value as of Beginning of Year	\$446,959,556	\$396,103,870
Contributions and Receipts	64,748,906	61,268,886
Benefit Payments and Expenses	(62,687,913)	(61,298,048)
Investment Return	63,216,035	50,884,848
Market Value as of End of Year	<u>\$512,236,584</u>	<u>\$446,959,556</u>
<b>Computed Rate of Return</b>	14.11%	12.85%

Returns and annualized past returns developed by PERAC are shown below. Information is obtained from the Annual Investment Reports published by PERAC for the years shown.

Year	1-Year Return	5-Year Return	Return (Since 1985)
2013	14.86%	10.57%	8.33%
2012	13.54%	1.08%	8.10%
2011	-0.18%	0.21%	7.91%
2010	12.20%	2.74%	8.23%
2009	13.15%	1.47%	8.08%
2008	-26.65%	0.83%	7.87%
2007	8.72%	10.58%	9.69%
2006	13.05%	6.74%	9.74%
2005	5.44%	3.15%	9.58%
2004	9.63%	1.59%	9.79%

## SECTION 2 - PRINCIPAL VALUATION RESULTS

### Exhibit 2.1 - Plan Assets

Valuation Date	1/1/2014	1/1/2013	1/1/2012
1. Market Value of Assets as of prior January 1	\$446,959,556	\$396,103,870	\$393,277,156
a. Prior Year Contributions and Receipts	64,748,906	61,268,886	58,806,923
b. Prior Year Benefit Payments and Expenses	(62,687,913)	(61,298,048)	(55,224,151)
c. Expected Investment Return Rate	8.00%	8.00%	8.00%
d. Expected Investment Return	35,846,074	31,687,046	31,617,426
e. Expected Market Value of Assets as of Valuation Date	\$484,866,623	\$427,761,754	\$428,477,354
2. Prior Year Gain / (Loss)			
a. Market Value of Assets as of January 1	\$512,236,584	\$446,959,556	\$396,103,870
b. Expected Market Value of Assets	484,866,623	427,761,754	428,477,354
c. Prior Year Gain / (Loss)	27,369,961	19,197,802	(32,373,484)
3. Phase-In of Asset Gains and Losses			
	Unrecognized	Unrecognized	Unrecognized
Plan Year	Gain / (Loss)	Gain / (Loss)	Gain / (Loss)
a. 2013	\$27,369,961	\$21,895,969	-
b. 2012	19,197,802	11,518,681	15,358,242
c. 2011	(32,373,484)	(12,949,394)	(19,424,090)
d. 2010	17,124,285	3,424,857	6,849,714
e. 2009	14,717,789	-	2,943,558
f. 2008	(154,155,062)	-	-
g. Total deferred gains/(losses)	23,890,113	5,727,424	(40,568,112)
4. Actuarial Value of Assets			
a. Market Value of Assets Less Unrecognized Gain / (Loss)	\$488,346,471	\$441,232,132	\$436,671,982
b. 80% of Market Value of Assets	409,789,267	357,567,645	316,883,096
c. 120% of Market Value of Assets	614,683,901	536,351,467	475,324,644
d. Actuarial Value of Assets, a., but not less than b. and not greater than c.	\$488,346,471	\$441,232,132	\$436,671,982
e. Ratio of Actuarial Value of Assets to Market Value of Assets	95.34%	98.72%	110.24%
5. Rate of Return on Actuarial Value of Assets for Prior Calendar Year	10.19%	1.05%	0.00%

## SECTION 2 - PRINCIPAL VALUATION RESULTS

The **Actuarial Present Value of Future Benefits** is the present value of the cost to finance all benefits payable in the future, discounted to reflect the probability of payment and the time value of money. Below is the Actuarial Present Value of Future Benefits from the current valuation and the prior valuation:

### Exhibit 2.2 - Actuarial Present Value of Future Benefits

Valuation Date	<u>1/1/2014</u>	<u>1/1/2012</u>
<b>Actives</b>		
Superannuation	\$631,264,533	\$594,342,118
Termination	29,892,835	26,934,251
Death	38,513,768	35,388,014
Disability	64,522,223	54,557,371
Total Actives	<u>\$764,193,359</u>	<u>\$711,221,754</u>
<b>Retired Members and Inactives</b>		
Retired Members and Beneficiaries	\$454,254,767	\$395,637,470
Disabled Members	79,922,522	67,158,647
Inactive Members	12,940,975	10,996,041
Total Retired Members and Inactives	<u>\$547,118,264</u>	<u>\$473,792,158</u>
<b>Total Present Value of Future Benefits</b>	<b>\$1,311,311,623</b>	<b>\$1,185,013,912</b>

The **Actuarial Accrued Liability** is the portion of the Actuarial Present Value of Future Benefits which is allocated to all periods prior to a valuation year and therefore is not provided for by future Normal Costs. Below is the Actuarial Accrued Liability from the current valuation and the prior valuation:

### Exhibit 2.3 - Actuarial Accrued Liability

Valuation Date	<u>1/1/2014</u>	<u>1/1/2012</u>
<b>Actives</b>		
Superannuation	479,808,388	\$451,199,487
Termination	14,469,386	13,606,639
Death	20,684,472	18,132,908
Disability	25,689,393	26,065,590
Total Actives	<u>\$540,651,639</u>	<u>\$509,004,624</u>
<b>Retired Members and Inactives</b>		
Retired Members and Beneficiaries	\$454,254,767	\$395,637,470
Disabled Members	79,922,522	67,158,647
Inactive Members	12,940,975	10,996,041
Total Retired Members and Inactives	<u>\$547,118,264</u>	<u>\$473,792,158</u>
<b>Total Actuarial Accrued Liability</b>	<b>\$1,087,769,903</b>	<b>\$982,796,782</b>

Worcester Regional Retirement System  
Actuarial Valuation as of January 1, 2014

## SECTION 2 - PRINCIPAL VALUATION RESULTS

The **Normal Cost** is the portion of the Actuarial Present Value of Future Benefits which is allocated to a valuation year. Only active employees who have not reached Normal Retirement Age incur a Normal Cost. Below is the Normal Cost from the current valuation and the prior valuation:

### Exhibit 2.4 - Normal Cost

Valuation Date	<u>1/1/2014</u>	<u>1/1/2012</u>
<b>Actives</b>		
Superannuation	\$17,422,094	\$19,333,118
Termination	5,159,592	3,431,701
Death	2,477,164	2,385,287
Disability	4,567,984	3,318,017
Total Actives	<u>\$29,626,834</u>	<u>\$28,468,123</u>
As of Percentage of Salary	11.7%	11.9%
<b>Administrative Expenses</b>	\$1,000,000	\$0
As of Percentage of Salary	0.4%	0.0%
<b>Total Normal Cost</b>		
Normal Cost	\$30,626,834	\$28,468,123
As a Percentage of Salary	12.1%	11.9%
<b>Employee Normal Cost</b>		
Employee Contributions	\$23,492,514	\$20,400,686
As a Percentage of Salary	9.3%	8.5%
<b>Employer Normal Cost</b>		
Employer Normal Cost	\$7,134,320	\$8,067,437
As a Percentage of Salary	2.8%	3.4%

### Exhibit 2.5 - Unfunded Actuarial Accrued Liability

Valuation Date	<u>1/1/2014</u>	<u>1/1/2012</u>
<b>Unfunded Actuarial Accrued Liability</b>		
a. Actuarial Accrued Liability	\$1,087,769,903	\$982,796,782
b. Actuarial Value of Assets	488,346,471	436,671,982
c. Unfunded Actuarial Accrued Liability (a. - b.)	\$599,423,432	\$546,124,800
d. Funded Ratio (b. divided by a.)	44.9%	44.4%

## SECTION 2 - PRINCIPAL VALUATION RESULTS

### Exhibit 2.6 - Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding mortality, retirement, disability and withdrawal rates as well as salary increases and investment returns. A comparison of the results of the current valuation and the prior valuation is made to determine how closely actual experience relates to expected. During the two years since the last valuation, the total unfunded actuarial accrued liability of the System was expected to increase by \$19,617,036. Below is the development of the Actuarial Gain or Loss for the current 2-year period:

Calendar Year Ending	<u>12/31/2013</u>	<u>12/31/2012</u>
<b>Expected Unfunded Actuarial Accrued Liability</b>		
a. Unfunded Actuarial Accrued Liability, beginning of year	\$556,636,486	\$546,124,800
b. Normal cost, beginning of year	\$29,749,189	28,468,123
c. Total contributions	64,748,906	61,268,886
d. Interest (full year on a. and b., one-half year on c.)	44,105,068	43,312,449
e. Expected Unfunded Actuarial Accrued Liability	\$565,741,836	\$556,636,486
f. Unfunded Actuarial Accrued Liability (before changes)	\$583,636,708	
g. (Gain)/Loss	\$17,894,872	
<b>Asset (gain)/loss</b>		
a. Actuarial value of assets, beginning of year	\$441,232,132	\$436,671,982
b. Contributions and Receipts	64,748,906	61,268,886
c. Benefit Payments and Expenses	(62,687,913)	(61,298,048)
d. Assumed rate of return	8.00%	8.00%
e. Expected return	35,387,880	34,932,495
f. Actuarial value of assets, end of year	488,346,471	441,232,132
g. Actual return	45,053,346	4,589,312
h. Actual rate of return	10.19%	1.05%
i. Asset (gain)/loss	(\$9,665,466)	\$30,343,183
j. Total asset (gain)/loss, 2-year period	\$23,105,172	
<b>Actual Unfunded Actuarial Accrued Liability</b>		
a. Changes due to:		
i) Asset (gain)/loss	\$23,105,172	
ii) (Gain)/loss from demographic experience	(5,210,300)	
iii) (Gain)/loss prior to changes	17,894,872	
iv) Plan change - apply Chapter 176	-	
v) Plan change - increase COLA base	12,098,511	
vi) Assumption changes	3,688,213	
vii) Assumption change - Decrease investment return	-	
vii) Total changes	33,681,596	
b. Unfunded Actuarial Accrued Liability, end of year	\$599,423,432	

## SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

### Exhibit 3.1 - Annual Appropriations

The **Annual Appropriation** is determined in accordance with the requirements set forth in Section 22D of Chapter 32 of the Massachusetts General Laws ("M.G.L."). The appropriation is comprised of the annual employer normal cost and amortization payments to pay the unfunded actuarial accrued liability. Below are the details of the annual appropriations for the current and prior valuations, adjusted for semi-annual payments made each July 1 and January 1. The appropriations shown are based on the results of the valuations and do not account for any adjustments made to appropriations in the selected funding schedule.

Amortization Payments	<u>1/1/2014</u>	<u>1/1/2012</u>
a. Early Retirement Incentive Plan (2002)		
Fully Funded Year	2028	2028
Balance as of valuation date	\$13,026,157	\$13,226,403
Amortization Amount	\$1,142,520	\$1,046,240
Remaining Payment Period (from Valuation date)	14	16
b. Early Retirement Incentive Plan (2003)		
Fully Funded Year	2028	2028
Balance as of valuation date	\$2,553,933	\$2,593,196
Amortization Amount	\$224,005	\$205,129
Remaining Payment Period (from Valuation date)	14	16
c. Early Retirement Incentive Plan (2010)		
Fully Funded Year	2022	
Balance as of valuation date	\$34,043	
Amortization Amount	\$5,485	
Remaining Payment Period (from Valuation date)	8	
d. Unfunded Actuarial Accrued Liability		
Fully Funded Year	2035	2040
Balance as of valuation date	\$583,809,299	\$530,305,201
Amortization Amount	\$39,507,010	\$30,105,239
Remaining Payment Period (from Valuation date)	21	28
e. Total Amortization Payments	\$40,879,020	\$31,356,608
<b>Normal Cost</b>	\$7,134,320	\$8,067,437
<b>Net 3(8)(c) Transfers</b>	\$1,660,000	\$0
<b>Total Appropriation as of January 1</b>	\$49,673,340	\$39,424,045
<b>Adjusted for Payments as of July 1 and January 1</b>	\$52,615,148	\$41,758,859



---

## SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

**Exhibits 3.2 and 3.3** are based on the assumptions below:

**Exhibit 3.2:**

- Total Normal Cost is expected to increase 4% per year.
- The Employee Contribution rate will increase linearly from the 2014 percentage to 10.50% by 2028 as members contributing at the lower rates are replaced by new members contributing over 9%.
- Employer Normal Cost is the difference between Total Normal Cost and Employee Contributions.
- The Unfunded Actuarial Accrued Liability ("UAL") is computed as of January 1 of each year assuming no future gains or losses.
- The Amortization Payment of UAL is an increasing payment at 4% paid over 21 years through 2035.
- The Amortization Payment of the Early Retirement Incentive Plan (2002) is an increasing payment at 4.5% paid over 14 years through 2028.
- The Amortization Payment of the Early Retirement Incentive Plan (2003) is an increasing payment at 4.5% paid over 14 years through 2028.
- The Amortization Payment of the Early Retirement Incentive Plan (2010) is a level payment to be paid over 8 years through 2022.
- Total Employer Cost is the sum of the Employer Normal Cost, net 3(8)(c) transfers and the Amortization of the UAL (including ERIs), all computed as of January 1 of each year and adjusted for semi-annual payments made on July 1 and January 1.
- For fiscal year 2015, we show the actual appropriation developed under the previous funding schedule of \$40,135,980. For fiscal years 2016 and later, the Board has selected a funding schedule that fully amortizes the unfunded actuarial accrued liability by 2035, with annual employer costs limited to increases of 8% over the prior year.

**Exhibit 3.3:**

- Expected benefit payments include payments expected to be made to retired members, beneficiaries, disabled members and active members expected to retire. In addition, expected benefit payments include distribution of the annuity savings fund attributed to inactive members.
- Benefit payments exclude cost-of-living increases granted to members in pay status between 1982 and 1997. In addition, benefit payments are as expected for the first ten years of the forecast, then increase by the greater of 4.50% per year thereafter or the expected future payments for the current population projected by our computer model.
- Calendar year cash flow entries are developed as of each January 1.

## SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

**Exhibit 3.2 - 30-Year Forecast of Annual Appropriations**

Fiscal Year Ending	Employer Normal Cost	Amortization Payment of UAL	Amortization Payment of ERI 2002	Amortization Payment of ERI 2003	Amortization Payment of ERI 2010	Total Employer Cost	Increase over Prior Year	Unfunded Actuarial Accrued Liability
2015	\$9,315,146	\$29,367,569	\$1,210,184	\$237,271	\$5,810	\$40,135,980		\$599,423,432
2016	9,293,514	32,534,944	1,264,642	247,948	5,810	43,346,858	8.00%	615,951,915
2017	9,258,061	35,970,079	1,321,551	259,106	5,810	46,814,607	8.00%	630,506,760
2018	9,207,714	39,694,466	1,381,020	270,766	5,810	50,559,776	8.00%	642,654,073
2019	9,141,340	43,731,291	1,443,167	282,950	5,810	54,604,558	8.00%	651,903,206
2020	9,057,738	48,105,582	1,508,109	295,683	5,810	58,972,922	8.00%	657,700,473
2021	8,955,634	52,844,348	1,575,975	308,988	5,810	63,690,755	8.00%	659,422,229
2022	8,833,684	57,976,739	1,646,893	322,893	5,810	68,786,019	8.00%	656,367,242
2023	8,690,461	63,540,011	1,721,003	337,423	-	74,288,898	8.00%	647,748,308
2024	8,524,460	67,124,026	1,798,447	352,607	-	77,799,540	4.73%	632,683,005
2025	8,334,087	69,808,987	1,879,378	368,475	-	80,390,927	3.33%	612,663,717
2026	8,117,658	72,601,347	1,963,950	385,056	-	83,068,011	3.33%	588,206,561
2027	7,873,393	75,505,401	2,052,327	402,383	-	85,833,504	3.33%	558,842,563
2028	7,599,414	78,525,617	2,144,683	420,490	-	88,690,204	3.33%	524,060,651
2029	7,293,732	81,666,642	-	-	-	88,960,374	0.30%	483,304,098
2030	7,515,148	84,933,307	-	-	-	92,448,455	3.92%	438,699,873
2031	7,745,422	88,330,639	-	-	-	96,076,061	3.92%	387,196,568
2032	7,984,906	91,863,865	-	-	-	99,848,771	3.93%	328,109,027
2033	8,233,971	95,538,419	-	-	-	103,772,390	3.93%	260,691,952
2034	8,492,997	99,359,957	-	-	-	107,852,954	3.93%	184,134,880
2035	8,762,384	103,334,354	-	-	-	112,096,738	3.93%	97,556,743
2036	9,042,548	-	-	-	-	9,042,548	-91.93%	-
2037	9,333,918	-	-	-	-	9,333,918	3.22%	-
2038	9,636,941	-	-	-	-	9,636,941	3.25%	-
2039	9,952,087	-	-	-	-	9,952,087	3.27%	-
2040	10,279,838	-	-	-	-	10,279,838	3.29%	-
2041	10,620,700	-	-	-	-	10,620,700	3.32%	-
2042	10,975,195	-	-	-	-	10,975,195	3.34%	-
2043	11,343,870	-	-	-	-	11,343,870	3.36%	-
2044	11,727,293	-	-	-	-	11,727,293	3.38%	-

Worcester Regional Retirement System  
Actuarial Valuation as of January 1, 2014

## SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

### Exhibit 3.3 - 30-Year Forecast of Cash Flow

Calendar Year	Assets, BOY	Benefit Payments	Employee Contributions	Employer Contributions	Investment Return	Assets, EOY
2014	\$512,236,584	\$74,787,834	\$23,492,514	\$37,891,905	\$40,398,112	\$539,231,281
2015	539,231,281	65,754,814	24,738,010	40,923,257	43,134,449	582,272,183
2016	582,272,183	69,804,428	26,045,558	44,197,117	46,600,765	629,311,195
2017	629,311,195	73,987,941	27,418,128	47,732,887	50,395,295	680,869,564
2018	680,869,564	78,331,404	28,858,832	51,551,518	54,559,653	737,508,163
2019	737,508,163	82,936,347	30,370,922	55,675,640	59,135,429	799,753,807
2020	799,753,807	87,840,953	31,957,806	60,129,691	64,164,321	868,164,672
2021	868,164,672	92,780,125	33,623,047	64,940,067	69,703,770	943,651,431
2022	943,651,431	97,671,974	35,370,375	70,135,272	75,831,574	1,027,316,678
2023	1,027,316,678	102,577,882	37,203,692	73,449,627	82,535,270	1,117,927,385
2024	1,117,927,385	107,488,817	39,127,082	75,896,125	89,760,681	1,215,222,456
2025	1,215,222,456	112,648,478	41,144,818	78,423,528	97,517,657	1,319,659,981
2026	1,319,659,981	117,717,660	43,261,369	81,034,398	105,857,850	1,432,095,938
2027	1,432,095,938	123,014,955	45,481,412	83,731,374	114,836,248	1,553,130,017
2028	1,553,130,017	128,550,628	47,809,840	83,986,438	124,391,046	1,680,766,713
2029	1,680,766,713	134,335,406	49,722,234	87,279,495	134,576,878	1,818,009,914
2030	1,818,009,914	140,380,499	51,711,123	90,704,275	145,528,972	1,965,573,785
2031	1,965,573,785	146,697,621	53,779,568	94,266,046	157,304,316	2,124,226,094
2032	2,124,226,094	153,299,014	55,930,750	97,970,288	169,964,175	2,294,792,293
2033	2,294,792,293	160,197,470	58,167,981	101,822,700	183,574,423	2,478,159,927
2034	2,478,159,927	167,406,356	60,494,700	105,829,207	198,205,888	2,675,283,366
2035	2,675,283,366	174,939,642	62,914,488	8,536,963	209,538,181	2,781,333,356
2036	2,781,333,356	182,811,926	65,431,067	8,812,042	217,802,020	2,890,566,559
2037	2,890,566,559	191,038,463	68,048,310	9,098,123	226,310,003	3,002,984,532
2038	3,002,984,532	199,635,194	70,770,242	9,395,648	235,061,759	3,118,576,987
2039	3,118,576,987	208,618,778	73,601,052	9,705,074	244,055,944	3,237,320,279
2040	3,237,320,279	218,006,623	76,545,094	10,026,877	253,290,121	3,359,175,748
2041	3,359,175,748	227,816,921	79,606,898	10,361,552	262,760,626	3,484,087,903
2042	3,484,087,903	238,068,682	82,791,174	10,709,614	272,462,424	3,611,982,433
2043	3,611,982,433	248,781,773	86,102,821	11,071,599	282,388,943	3,742,764,023

## SECTION 4 - REQUIRED DISCLOSURES

The Governmental Accounting Standards Board (GASB) requires certain disclosures of pension liabilities for public employer financial statements in accordance with Statement Numbers 25 and 27. Footnote disclosures required by GASB Statement Numbers 25 and 27 include a description of the Plan, a summary of significant accounting policies and information about contributions, legally required reserves and investment concentrations. The Annual Required Contribution (ARC) shown is for the fiscal year beginning the following July 1.

Below is the required disclosure information:

<u>Valuation Date</u>	<u>1/1/2014</u>	<u>1/1/2012</u>
1. Actuarial Accrued Liability	\$1,087,769,903	\$982,796,782
2. Actuarial Value of Assets	488,346,471	436,671,982
3. Unfunded Actuarial Accrued Liability (UAAL)	\$599,423,432	\$546,124,800
4. Funded Ratio = 2. ÷ 1.	44.9%	44.4%
5. Covered Payroll	\$252,829,591	\$238,952,079
6. UAAL as a Percentage of Covered Payroll = 3. ÷ 5.	237.1%	228.5%
7. Annual Required Contribution (ARC)	\$37,510,266	\$35,036,320
8. Net Pension Obligation	\$0	\$0

### Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) / c)
1/1/2014	488,346,471	1,087,769,903	599,423,432	44.9%	252,829,591	237.1%
1/1/2012	436,671,982	982,796,782	546,124,800	44.4%	238,952,079	228.5%
1/1/2010	413,976,785	863,002,067	449,025,282	48.0%	241,992,607	185.6%
1/1/2007	389,758,785	692,768,325	303,009,540	56.3%	211,518,755	143.3%
1/1/2004	350,879,900	552,773,549	201,893,649	63.5%	170,669,442	118.3%
1/1/2001	316,389,108	426,280,953	109,891,845	74.2%	145,000,347	75.8%
1/1/1999	248,967,040	374,455,997	125,488,957	66.5%	119,857,640	104.7%
1/1/1998	240,982,371	394,330,873	153,348,502	61.1%	134,803,954	113.8%
1/1/1997	174,065,213	291,956,757	117,891,544	59.6%	111,270,545	106.0%

Worcester Regional Retirement System  
Actuarial Valuation as of January 1, 2014

## SECTION 4 - REQUIRED DISCLOSURES

The most recent actuarial valuation of the System was prepared by KMS Actuaries, LLC as of January 1, 2014.

The normal cost for employees on that date was:	\$23,492,514	9.3% of payroll
The normal cost for the employer was:	\$7,134,320	2.8% of payroll

The actuarial liability for active members was:	\$540,651,639
The actuarial liability for retired and inactive members was:	547,118,264
Total actuarial liability:	\$1,087,769,903
System assets as of that date:	\$488,346,471
Unfunded actuarial accrued liability:	\$599,423,432

The ratio of System assets to total actuarial accrued liability was: 44.9%

The principal actuarial assumptions used in the valuation are as follows:

Investment Return:	8.00%
Rate of Salary Increase:	3.00% (all years)

### Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) / c)
1/1/2014	488,346,471	1,087,769,903	599,423,432	44.9%	252,829,591	237.1%
1/1/2012	436,671,982	982,796,782	546,124,800	44.4%	238,952,079	228.5%
1/1/2010	413,976,785	863,002,067	449,025,282	48.0%	241,992,607	185.6%
1/1/2007	389,758,785	692,768,325	303,009,540	56.3%	211,518,755	143.3%
1/1/2004	350,879,900	552,773,549	201,893,649	63.5%	170,669,442	118.3%
1/1/2001	316,389,108	426,280,953	109,891,845	74.2%	145,000,347	75.8%
1/1/1999	248,967,040	374,455,997	125,488,957	66.5%	119,857,640	104.7%
1/1/1998	240,982,371	394,330,873	153,348,502	61.1%	134,803,954	113.8%
1/1/1997	174,065,213	291,956,757	117,891,544	59.6%	111,270,545	106.0%

Worcester Regional Retirement System  
Actuarial Valuation as of January 1, 2014

---

## SECTION 5 - SUMMARY OF PLAN PROVISIONS

**Administration** There are 105 contributory retirement systems for public employees in Massachusetts. Each system is governed by a retirement board and all boards, although operating independently, are governed by Chapter 32 of the Massachusetts General Laws and other applicable statutes. This law in general provides uniform benefits, uniform contribution requirements and a uniform accounting and funds structure for all systems.

**Participation** Participation is mandatory for all full-time employees. Eligibility with respect to part-time, provisional, temporary, seasonal or intermittent employment is governed by regulations promulgated by the local retirement board, and approved by PERAC. Membership is optional for certain elected officials.

There are four classes of membership in the Retirement System:

- |          |  |
|----------|--|
| Group 1: | General employees, including clerical, administrative, technical and all other employees not otherwise classified. |
| Group 2: | Certain specified hazardous duty positions.  |
| Group 3: | State police officers and inspectors.  |
| Group 4: | Local police officers, firefighters and other specified hazardous positions.                                       |

For members in more than one group, participation will be proportional.

**Member Contributions** Member contributions vary depending on the most recent date of membership:

Prior to 1975:	5% of Salary
1975 – 1983:	7% of Salary
1984 – June 30, 1996:	8% of Salary
July 1, 1996 – present:	9% of Salary
1979 – present:	An additional 2% of Salary in excess of \$30,000.
Group 1 members hired on or after April 2, 2012:	6% of Salary with 30 or more years of creditable service.

**Rate of Interest** Interest on regular deductions made after January 1, 1984 is a rate established by PERAC in consultation with the Commissioner of Banks. The rate is obtained from the average rates paid on individual savings accounts by a representative sample of at least ten financial institutions.

## SECTION 5 - SUMMARY OF PLAN PROVISIONS

<b>Retirement Age</b>	The mandatory retirement age for some Group 2 and Group 4 members is age 65. Most Group 2 and Group 4 members may remain in service after reaching age 65. Group 4 members who are employed in certain public safety positions are required to retire at age 65. There is no mandatory retirement age for members in Group 1.
<b>Salary</b>	Gross regular compensation. This does not include bonuses, overtime, severance pay, unused sick leave credit or other similar compensation.
<b>Average Salary</b>	<p>Membership before April 2, 2012: Average annual rate of regular compensation received during the three consecutive years that produce the highest average, or, if greater, during the last three years (whether or not consecutive) preceding retirement.</p> <p>Membership on or after April 2, 2012: Average annual rate of regular compensation received during the five consecutive years that produce the highest average, or, if greater, during the last five years (whether or not consecutive) preceding retirement.</p>
<b>Creditable Service</b>	The period during which a member contributes to the retirement system plus certain periods of military service and "purchased" service.
<b>Benefit Rate</b>	The benefit rate varies with the member's retirement age, Group, membership date and years of creditable service at retirement. Each year a member retires prior to the age at which the 2.5% maximum benefit rate applies, a reduction is applied to each year of age under the maximum age. The maximum age and reduction for each Group and membership date is as follows:

	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
2.5% for Membership before April 2, 2012:			
Maximum age:	65	60	55
Reduction:	0.1%	0.1%	0.1%
2.5% for Membership on or after April 2, 2012 (less than 30 years of service):			
Maximum age:	67	62	57
Reduction:	0.15%	0.15%	0.15%
2.5% for Membership on or after April 2, 2012 (30+ years of service):			
Maximum age:	67	62	57
Reduction:	0.125%	0.125%	0.125%

Worcester Regional Retirement System  
Actuarial Valuation as of January 1, 2014

## SECTION 5 - SUMMARY OF PLAN PROVISIONS

<b>Superannuation Retirement</b>	Eligibility if membership before April 2, 2012:	<ul style="list-style-type: none"> <li>• completion of 20 years of Creditable Service, or</li> <li>• attainment of age 55 if hired prior to 1978, or</li> <li>• attainment of age 55 with 10 years of Creditable Service, if hired after 1978.</li> </ul>
	Eligibility if membership on or after April 2, 2012:	<ul style="list-style-type: none"> <li>• attainment of age 60 with 10 years of Creditable Service if classified in Group 1</li> <li>• attainment of age 55 with 10 years of Creditable Service if classified in Group 2</li> <li>• attainment of age 55 if hired prior to 1978 or if classified in Group 4</li> </ul>
	Benefit Amount	Product of the member's Benefit Rate, Average Salary and Creditable Service.
	Maximum Benefit	80% of the member's Average Salary.
	Veteran's Benefit	Additional benefit of \$15 per year of Creditable Service, up to a maximum of \$300.
<b>Deferred Vested</b>	Eligibility	<ul style="list-style-type: none"> <li>• completion of ten or more years of Creditable Service.</li> <li>• elected officials hired prior to 1978, completion of six years of Creditable Service.</li> </ul>
	Benefit Amount	Accrued benefit payable commencing at age 55, or the completion of 20 years of Creditable Service, or may be deferred until later at the participant's option.
<b>Withdrawal of Contributions</b>		<p>Contributions may be withdrawn upon termination of employment.</p> <ul style="list-style-type: none"> <li>• Members hired on or after January 1, 1984 who terminate with less than ten years of Creditable Service receive contributions plus interest on the Annuity Savings Account at an annual rate of 3%.</li> <li>• All other withdrawals receive contributions plus 100% of the regular interest that has accrued to the Annuity Savings Account.</li> </ul>



## SECTION 5 - SUMMARY OF PLAN PROVISIONS

<b>Ordinary Disability Retirement</b>	Eligibility	Non-job related disability after completion of ten years of Creditable Service.
	Benefit Amount for Group 1 membership before April 2, 2012 or Group 2 or Group 4	Superannuation benefit determined if the member is age 55, up to a maximum of 80% of Average Salary over three years. If the member is a veteran, 50% of final rate of salary (final year) plus an annuity based on the accumulated member contributions plus credited interest, up to a maximum of 80% of Average Salary over five years.
	Benefit Amount for Group 1 membership on or after April 2, 2012	Superannuation benefit determined if the member is age 60, up to a maximum of 80% of Average Salary over three years. If the member is a veteran, 50% of final rate of salary (final year) plus an annuity based on the accumulated member contributions plus credited interest, up to a maximum of 80% of Average Salary over five years.
<b>Accidental Disability Retirement</b>	Eligibility	Disabled as a result of an accident in the performance of duties. There is no minimum age or service requirement.
	Benefit Amount	72% of Salary plus an annuity based on accumulated member contributions plus credited interest.
	Maximum Benefit	100% of Salary if hired before January 1, 1988, otherwise 75% of Salary.
	Veteran's Benefit	Additional allowance of \$15 per year of Creditable Service, up to a maximum of \$300.
	Supplemental Dependent	Additional allowance of \$415 per year for each child.
<b>Non-Occupational Death</b>	Eligibility	For members with at least two years of creditable service who die while in active service, but not due to occupational injury.
	Benefit Amount	Benefit as if Option C had been elected. Minimum benefit of \$250 per month for surviving spouse, \$120 per month for first child and \$90 per month for each additional child.

---

## SECTION 5 - SUMMARY OF PLAN PROVISIONS

<b>Accidental Death</b>	Eligibility	For members who die as a result of an occupational injury.
	Benefit Amount	72% of Salary plus an annuity based on accumulated member contributions plus credited interest.
	Maximum Benefit	100% of Salary if hired before January 1, 1988, otherwise 75% of Salary.
	Veteran's Benefit	Additional allowance of \$15 per year of creditable service, up to a maximum of \$300.
	Supplemental Dependent Allowance	Additional allowance of \$708.60 per year for each child until age 18 (or age 22 if a full-time student).
<b>Cost-of-Living Adjustment (COLA)</b>	In accordance with the adoption of Chapter 17 of the Acts of 1997, the granting of a Cost-of-Living Adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees and beneficiaries who have been receiving benefit payments for at least one year as of July 1 are eligible for the adjustment. The maximum amount of pension benefit subject to a COLA is \$16,000, effective July 1, 2015. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the Commonwealth of Massachusetts and are not the liability of the Retirement System.	
<b>Optional Forms of Payment</b>	A member may elect to receive his or her retirement allowance, payable in monthly installments, in one of three forms of payment: <ul style="list-style-type: none"><li>• Option A – Total annual allowance commencing at retirement and terminating at member's death.</li><li>• Option B – A reduced annual allowance commencing at retirement with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member.</li><li>• Option C – A reduced annual allowance commencing at retirement with 66⅔% of benefit continued to designated beneficiary upon death of member. For members who retired on or after January 12, 1988, if the beneficiary pre-deceases the retiree, the benefit payable increases based on the factor used to determine the Option C benefit at retirement. For members who retired prior to January 12, 1988, if the System has accepted Section 288 of Chapter 194 of the Acts of 1998 and the beneficiary pre-deceases the retiree, the benefit payable increases based on the factor used to determine the Option C benefit at retirement.</li></ul>	

## SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

**Valuation Date:** January 1, 2014

**Investment Return:** 8.00% per year.

**Annuity Savings Fund Interest Rate:** 2.00% per year

**Amortization Method:** *Unfunded Actuarial Accrued Liability (UAL):*  
Increasing dollar amount at 4% to reduce the Unfunded Actuarial Accrued Liability to zero on or before June 30, 2035.

*Early Retirement Incentive Programs (ERI) for 2002 and 2003:*  
Increasing dollar amount at 4.5% to reduce the Unfunded Actuarial Accrued Liability attributable to ERI to zero on or before June 30, 2028.

*Early Retirement Incentive Program (ERI) for 2010:*  
Level dollar amount to reduce the Unfunded Actuarial Accrued Liability attributable to ERI to zero on or before June 30, 2022.

**Salary Scale:** The assumed annual rates for salary increases including longevity are illustrated by the following rates:

<u>Year</u>	<u>General Employees</u>	<u>Police and Fire</u>
All years	3.00%	3.00%

**Cost-of-Living Allowance:** Cost-of-Living Allowances (COLA) are assumed to be 3% of the pension amount, capped at \$480 per year. Previously, capped at \$420 per year.

**Mortality Table:** RP-2000 Mortality Table Projected to 2014 with Scale AA. RP-2000 Mortality Table set forward two years for disabled members. Previously, RP-2000 Mortality Table projected to 2012 with Scale AA.

*General Employees:* 55% of deaths are job-related.

*Police and Fire:* 90% of deaths are job-related.

**Turnover Rates:** Illustrative turnover rates are shown below:

<u>Creditable Service</u>	<u>General Employees</u>	<u>Police and Fire</u>
0	0.1500	0.0150
10	0.0540	0.0150
20	0.0200	0.0000
30	0.0000	0.0000

## SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

### Disability Rates:

Illustrative disability rates are shown below:

<u>Attained Age</u>	<u>General Employees</u>	<u>Police and Fire</u>
20	0.0001	0.0010
30	0.0003	0.0030
40	0.0010	0.0030
50	0.0019	0.0125

*General Employees:* 55% of disabilities are accidental and 45% are ordinary.

*Police and Fire:* 90% of disabilities are accidental and 10% are ordinary.

### Retirement Rates:

Illustrative retirement rates are shown below:

<u>Age</u>	<u>General Employees</u>		<u>Police and Fire</u>
	<u>Male</u>	<u>Female</u>	<u>Male &amp; Female</u>
50	0.0100	0.0150	0.0200
51	0.0100	0.0150	0.0200
52	0.0100	0.0200	0.0200
53	0.0100	0.0250	0.0500
54	0.0200	0.0250	0.0750
55	0.0200	0.0550	0.1500
56	0.0250	0.0650	0.1000
57	0.0250	0.0650	0.1000
58	0.0500	0.0650	0.1000
59	0.0650	0.0650	0.1500
60	0.1200	0.0500	0.2000
61	0.2000	0.1300	0.2000
62	0.3000	0.1500	0.2500
63	0.2500	0.1250	0.2500
64	0.2200	0.1800	0.3000
65	0.4000	0.1500	1.0000
66	0.2500	0.2000	1.0000
67	0.2500	0.2000	1.0000
68	0.3000	0.2500	1.0000
69	0.3000	0.2000	1.0000
70	1.0000	1.0000	1.0000

---

## SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

<b>Actuarial Cost Method:</b>	Individual Entry Age Normal.
<b>Actuarial Asset Method:</b>	<p>The Actuarial Value of Assets is the market value of assets as of the valuation date reduced by the sum of:</p> <ul style="list-style-type: none"><li>a) 80% of gains and losses of the prior year,</li><li>b) 60% of gains and losses of the second prior year,</li><li>c) 40% of gains and losses of the third prior year and</li><li>d) 20% of gains and losses of the fourth prior year.</li></ul> <p>Investment gains and losses are determined by the excess or deficiency of the expected return over the actual return on the market value. The actuarial valuation of assets is further constrained to be not less than 80% or more than 120% of market value.</p>
<b>Census Data:</b>	Census data as of the valuation date were submitted by the Retirement Board.
<b>Asset Data:</b>	Asset information is reported annually to the Public Employee Retirement Administration Commission by the Worcester Regional Retirement System.
<b>Dependents:</b>	80% of all members will be survived by a spouse. Age assumption for spouses is that males are assumed to be three years older than females.
<b>Administrative Expenses:</b>	The anticipated administrative expenses for the fiscal year. For Fiscal Year 2015, the administrative expenses were assumed to be \$1,000,000 and is anticipated to increase 4% per year.

## SECTION 7 - PLAN MEMBER INFORMATION

### Exhibit 7.1 - Active Members by Age and Years of Service as of January 1, 2014

Age	Years of Service									Total
	<u>0 to 4</u>	<u>5 to 9</u>	<u>10 to 14</u>	<u>15 to 19</u>	<u>20 to 24</u>	<u>25 to 29</u>	<u>30 to 34</u>	<u>35 to 39</u>	<u>40 &amp; up</u>	
Under 20	3	-	-	-	-	-	-	-	-	3
	28,726	-	-	-	-	-	-	-	-	28,726
20-24	172	4	-	-	-	-	-	-	-	176
	26,058	42,807	-	-	-	-	-	-	-	26,438
25 to 29	349	74	2	-	-	-	-	-	-	425
	29,354	41,329	41,151	-	-	-	-	-	-	31,495
30 to 34	173	153	64	1	-	-	-	-	-	391
	34,606	45,736	50,090	55,383	-	-	-	-	-	41,549
35 to 39	178	111	108	42	2	-	-	-	-	441
	31,759	43,267	59,718	58,940	57,053	-	-	-	-	44,206
40 to 44	309	177	159	116	22	4	1	-	-	788
	29,284	40,330	52,078	62,261	76,350	44,837	45,436	-	-	42,632
45 to 49	353	268	191	108	77	60	2	-	-	1,059
	27,876	31,376	40,746	55,630	69,789	71,235	70,558	-	-	39,498
50 to 54	255	282	296	161	48	83	31	3	-	1,159
	30,584	31,338	37,879	44,403	56,071	65,031	72,785	56,832	-	39,269
55 to 59	148	216	276	211	81	76	52	20	1	1,081
	32,514	32,880	35,893	38,324	45,688	57,287	70,121	64,554	140,226	39,814
60 to 64	75	100	139	93	76	90	26	13	13	625
	30,683	33,134	38,696	39,520	46,684	50,194	64,218	70,622	79,264	42,164
65 to 69	25	31	34	29	32	26	7	4	2	190
	29,650	23,675	31,855	31,920	40,593	44,409	40,167	52,356	65,606	34,523
70 & up	8	11	11	11	8	9	6	5	4	73
	22,121	20,769	30,904	32,408	26,068	31,291	35,800	36,460	22,150	28,462
Total	2,048	1,427	1,280	772	346	348	125	45	20	6,411
Average Salary	29,869	35,594	41,969	46,572	53,801	57,927	66,039	61,587	69,524	39,437
Average Age:							48.2	Average Service:		10.5

Worcester Regional Retirement System  
Actuarial Valuation as of January 1, 2014

## SECTION 7 - PLAN MEMBER INFORMATION

**Exhibit 7.2 - Retired Plan Members and Beneficiaries Annual Pensions as of January 1, 2014**

Attained Age	Male		Female		Total	
	Count	Total Payments	Count	Total Payments	Count	Total Payments
<20	0	0	1	8,229	1	8,229
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	2	29,908	2	29,908
40-44	1	34,204	7	147,806	8	182,010
45-49	2	27,024	6	72,475	8	99,499
50-54	10	256,574	10	216,928	20	473,502
55-59	64	2,305,852	81	1,138,644	145	3,444,496
60-64	149	4,756,539	219	3,126,579	368	7,883,118
65-69	225	6,725,929	312	4,979,588	537	11,705,517
70-74	206	4,703,765	294	4,552,986	500	9,256,751
75-79	136	2,800,454	284	3,761,357	420	6,561,811
80-84	112	1,939,313	216	2,524,681	328	4,463,994
85-89	86	1,466,832	220	1,970,506	306	3,437,338
90-94	39	417,539	118	939,263	157	1,356,802
95+	6	40,187	34	240,218	40	280,405
Total	1,036	25,474,212	1,804	23,709,168	2,840	49,183,380
Average Age	72.6		75.0		74.1	
Average Payment		24,589		13,143		17,318
	36.5%	51.8%	63.5%	48.2%	100.0%	100.0%

Included in above totals is \$506,325 in State reimbursed COLAs.

## SECTION 7 - PLAN MEMBER INFORMATION

**Exhibit 7.3 - Disabled Plan Members Annual Pensions as of January 1, 2014**

Attained Age	Male		Female		Total	
	Count	Total Payments	Count	Total Payments	Count	Total Payments
<20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	1	21,341	1	21,341
35-39	3	117,399	0	0	3	117,399
40-44	9	314,670	1	38,096	10	352,766
45-49	17	622,455	4	130,489	21	752,944
50-54	15	476,154	7	149,848	22	626,002
55-59	25	926,978	12	268,713	37	1,195,691
60-64	47	1,441,981	3	19,838	50	1,461,819
65-69	33	988,352	2	31,778	35	1,020,130
70-74	18	468,287	4	105,004	22	573,291
75-79	19	463,085	4	72,791	23	535,876
80-84	7	145,611	3	70,285	10	215,896
85-89	9	188,374	2	29,648	11	218,022
90-94	2	43,063	0	0	2	43,063
95+	0	0	0	0	0	0
Total	204	6,196,409	43	937,831	247	7,134,240
Average Age	63.8		61.8		63.5	
Average Payment		30,375		21,810		28,884
	82.6%	86.9%	17.4%	13.1%	100.0%	100.0%

Included in above totals is \$106,602 in State reimbursed COLAs.



---

## SECTION 8 - GLOSSARY OF TERMS

**Actuarial Accrued Liability** – That portion of the Actuarial Present Value of pension plan benefits which is not provided by future Normal Costs or employee contributions. It is the portion of the Actuarial Present Value attributable to service rendered as of the Valuation Date.

**Actuarial Assumptions** – Assumptions, based upon past experience or standard tables, used to predict the occurrence of future events affecting the commencement, amount and duration of pension benefits, such as: changes in compensation, mortality, withdrawal, disablement and retirement; rates of investment earnings and asset appreciation or depreciation; and any other relevant items.

**Actuarial Cost Method (or Funding Method)** – A procedure for allocating the Actuarial Present Value of all past and future pension plan benefits to the current year (Normal Cost) and the past (Actuarial Accrued Liability).

**Actuarial Gain or Loss (or Experience Gain or Loss)** – A measure of the difference between actual experience and that expected based upon the set of Actuarial Assumptions, during the period between the valuation date and the most recent immediately preceding valuation date.

**Actuarial Present Value** – The dollar value on the valuation date of all benefits expected to be paid to current members based upon the Actuarial Assumptions and the terms of the Plan.

**Amortization Payment** – That portion of the pension plan appropriation which represents payments made to pay interest on and the reduction of the Unfunded Accrued Liability.

**Annual Required Contribution (ARC)** – The employer's periodic required contributions to a defined benefit pension plan, calculated in accordance with the rules required by the Governmental Accounting Standards Board (GASB).

**Annual Statement** – The statement submitted by the local retirement board to PERAC each year that describes the asset holdings and Fund balances as of December 31 and the transactions during the calendar year that affected the financial condition of the retirement system.

**Annuity Reserve Fund** – The fund into which total accumulated Member Contributions, including interest, is transferred at the time a member retires, and from which annuity payments are made.

**Annuity Savings Fund** – The fund in which Member Contributions plus interest credited are held for active members and for former members who have not withdrawn their contributions and are not yet receiving a benefit (inactive members).

---

## SECTION 8 - GLOSSARY OF TERMS

**Assets** – The total value of the investments held by the Plan trust that are for the payment of promised benefits.

**Cost of Benefits** – The estimated payment from the pension system for benefits for the fiscal year.

**Expense Fund** – The fund into which the appropriation for administrative expenses is paid and from which all such expenses are paid.

**Funded Ratio** – The Actuarial Value of Assets expressed as a percentage of the Actuarial Accrued Liability.

**Funding Schedule** – The schedule based upon the most recently approved actuarial valuation which sets forth the amount which would be appropriated to the pension system in accordance with Section 22D of M.G.L. Chapter 32.

**GASB** – Governmental Accounting Standards Board.

**Normal Cost** – Total Normal Cost is that portion of the Actuarial Present Value of pension plan benefits which is expected to accrue in the current fiscal year. The Employee Normal Cost is the amount of the expected Member Contributions for the current fiscal year. The Employer Normal Cost is the difference between the Total Normal Cost and the Employee Normal Cost.

**Pension Benefit Obligation** – The portion of the Actuarial Present Value attributable to past service in accordance with the Projected Unit Credit cost method as stipulated by GASB Statement Number 5 (GASB 5). GASB 5 has been superseded by GASB Statements Number 25 and 27.

**Pension Fund** – The fund into which appropriation amounts as determined by PERAC are paid and from which pension benefits are paid.

**Pension Reserve Fund** – The fund which shall be credited with all amounts set aside by a system for the purpose of establishing a reserve to meet future pension liabilities. These amounts would include excess interest earnings.

**Present Value of Future Benefits** – The actuarial present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value of money and the probabilities of payment.

**Special Fund for Military Service Credit** – The fund which is credited with amounts paid by the retirement board equal to the amount which would have been contributed by a member during a military leave of absence as if the member had remained in active service of the retirement board. In the event of retirement or a non-job related death, such amount is transferred to the Annuity Reserve Fund. In the event of termination prior to retirement or death, such amount shall be transferred to the Pension Fund.

**Unfunded Actuarial Accrued Liability** – The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.

## SECTION 9 - MEMBER UNIT FY2016 APPROPRIATION

Unit	Unit Name	FYE2016 Appropriation						FYE2015	Increase over	Payment on
		Normal Cost	UAL	2002 ERI	2003 ERI	2010 ERI	Total	Appropriation	FYE 2015	7/1/2015
010	Ashburnham	128,744	414,856	27,279	-	-	570,879	549,867	3.82%	560,104
020	Ashburnham-Westminster Regional	115,542	351,839	-	-	-	467,381	432,884	7.97%	458,559
030	Auburn	433,396	1,610,074	150,256	23,313	-	2,217,039	1,969,580	12.56%	2,175,190
040	Auburn Housing Authority	7,440	39,296	-	-	-	46,736	58,239	-19.75%	45,854
050	Auburn Water District	9,464	65,483	4,472	-	-	79,419	66,265	19.85%	77,920
060	Barre	32,277	191,566	4,920	1,968	-	230,731	272,945	-15.47%	226,376
070	Barre Housing Authority	786	10,498	-	-	-	11,284	9,091	24.12%	11,071
080	Berlin	83,625	266,839	-	-	-	350,464	285,223	22.87%	343,849
090	Berlin-Boylston Regional	23,252	72,812	-	-	-	96,064	95,318	0.78%	94,251
100	Blackstone	112,133	438,315	-	-	-	550,448	667,736	-17.57%	540,058
105	Blackstone Housing Authority	(71)	13,092	-	-	-	13,021	11,088	17.43%	12,775
110	Blackstone-Millville Regional	120,179	300,324	-	-	-	420,503	359,614	16.93%	412,566
120	Bolton	83,860	223,808	14,759	-	-	322,427	252,179	27.86%	316,341
130	Boylston	118,661	313,061	11,180	-	-	442,902	421,347	5.12%	434,542
135	Boylston Water District	165	7,100	-	-	-	7,265	17,354	-58.14%	7,128
140	Brookfield	57,541	140,046	7,453	-	-	205,040	203,786	0.62%	201,170
150	Charlton	215,774	684,442	38,161	-	-	938,377	756,639	24.02%	920,665
160	Cherry Valley-Rochdale Water	(1,285)	37,868	-	-	-	36,583	37,334	-2.01%	35,893
165	Cherry Valley Sewer District	(1,367)	1,367	-	-	-	-	243	-100.00%	-
170	Douglas	202,422	543,800	10,731	10,293	-	767,246	691,889	10.89%	752,764
180	Dudley	99,274	472,479	114,033	6,812	-	692,598	700,001	-1.06%	679,525
190	Dudley Housing Authority	4,918	15,595	-	-	-	20,513	23,147	-11.38%	20,126
200	Dudley-Charlton Regional	155,491	553,095	35,028	15,289	-	758,903	650,489	16.67%	744,579
210	East Brookfield	25,496	66,503	-	-	-	91,999	65,802	39.81%	90,263
220	Grafton	298,984	1,017,879	34,433	14,835	-	1,366,131	1,214,521	12.48%	1,340,346
230	Grafton Housing Authority	17,837	25,057	-	-	-	42,894	35,776	19.90%	42,084
240	Hardwick	26,158	140,355	11,330	-	-	177,843	177,204	0.36%	174,486
250	Harvard	169,924	526,172	-	-	-	696,096	678,200	2.64%	682,957
260	Hillcrest Water District	9	2,151	-	-	-	2,160	1,192	81.21%	2,119
270	Holden	306,901	1,400,447	56,495	-	-	1,763,843	1,629,986	8.21%	1,730,551
280	Holden Housing Authority	10,156	14,670	-	-	-	24,826	19,919	24.63%	24,357
290	Hopedale	183,413	523,438	-	-	-	706,851	694,247	1.82%	693,509

Worcester Regional Retirement System  
Actuarial Valuation as of January 1, 2014

## SECTION 9 - MEMBER UNIT FY2016 APPROPRIATION

Unit	Unit Name	FYE2016 Appropriation						FYE2015	Increase over	Payment on
		Normal Cost	UAL	2002 ERI	2003 ERI	2010 ERI	Total	Appropriation	FYE 2015	7/1/2015
300	Hopedale Housing Authority	-	6,106	-	-	-	6,106	5,859	4.22%	5,991
310	Hubbardston	74,915	112,798	8,943	3,784	-	200,440	151,350	32.43%	196,657
320	Lancaster	86,856	371,738	-	-	-	458,594	413,323	10.95%	449,938
325	Lancaster Housing Authority	1,252	6,490	-	-	-	7,742	12,401	-37.57%	7,596
330	Leicester	175,774	741,922	44,867	1,817	-	964,380	998,367	-3.40%	946,178
340	Leicester Housing Authority	6,156	26,647	-	-	-	32,803	29,905	9.69%	32,184
350	Leicester Water District	1,722	46,942	-	-	-	48,664	47,776	1.86%	47,745
360	Lunenburg	166,581	819,687	-	-	-	986,268	847,728	16.34%	967,652
370	Lunenburg Housing Authority	3,224	398	-	-	-	3,622	4,624	-21.67%	3,554
380	Lunenburg Water District	928	42,180	-	-	-	43,108	47,806	-9.83%	42,294
390	Mendon	105,767	302,451	7,155	19,224	-	434,597	360,513	20.55%	426,394
400	Mendon-Upton Regional	180,055	386,622	5,963	6,659	-	579,299	468,835	23.56%	568,365
410	Millbury	217,808	1,085,389	121,783	-	-	1,424,980	1,376,740	3.50%	1,398,084
420	Millbury Housing Authority	14,629	53,384	-	5,451	-	73,464	61,156	20.13%	72,077
430	Millville	70,671	43,738	-	-	-	114,409	61,947	84.69%	112,250
440	Narragansett Regional	71,512	226,986	21,018	-	-	319,516	297,596	7.37%	313,485
450	Nashoba Regional	231,375	500,144	-	-	-	731,519	743,406	-1.60%	717,712
460	New Braintree	27,908	30,668	-	-	-	58,576	44,974	30.24%	57,470
470	Northboro	209,036	1,304,837	-	-	-	1,513,873	1,397,766	8.31%	1,485,299
480	Northboro Housing Authority	12,124	35,479	-	-	-	47,603	33,436	42.37%	46,705
490	Northboro-Southboro Regional	70,731	191,602	-	-	-	262,333	267,037	-1.76%	257,382
500	North Brookfield	69,390	282,217	-	12,261	-	363,868	344,504	5.62%	357,000
510	North Brookfield Housing Authority	254	13,614	-	-	-	13,868	11,122	24.69%	13,606
530	Oakham	21,396	41,098	-	-	-	62,494	71,425	-12.50%	61,314
540	Oxford	339,360	1,186,622	116,417	13,169	-	1,655,568	1,578,438	4.89%	1,624,320
550	Oxford Housing Authority	8,662	38,910	-	-	-	47,572	39,342	20.92%	46,674
555	Oxford-Rochdale Sewer District	(3,032)	19,409	-	-	-	16,377	11,015	48.68%	16,068
560	Paxton	102,678	350,972	-	-	-	453,650	423,616	7.09%	445,087
570	Petersham	37,758	86,239	-	1,968	-	125,965	193,098	-34.77%	123,587
580	Phillipston	39,507	64,611	-	-	-	104,118	69,185	50.49%	102,153
590	Princeton	27,025	271,314	7,155	-	-	305,494	343,182	-10.98%	299,728
600	Quabbin Regional	179,854	574,756	45,314	6,659	-	806,583	756,281	6.65%	791,359

Worcester Regional Retirement System  
Actuarial Valuation as of January 1, 2014

## SECTION 9 - MEMBER UNIT FY2016 APPROPRIATION

Unit	Unit Name	FYE2016 Appropriation						FYE2015	Increase over	Payment on
		Normal Cost	UAL	2002 ERI	2003 ERI	2010 ERI	Total	Appropriation	FYE 2015	7/1/2015
610	Quaboag Regional	64,857	186,932	26,234	-	-	278,023	264,574	5.08%	272,775
620	Royalston	8,136	38,442	-	-	-	46,578	25,333	83.86%	45,699
630	Rutland	103,535	299,184	5,368	-	-	408,087	419,313	-2.68%	400,384
640	Southboro	258,477	1,182,291	-	-	-	1,440,768	1,301,136	10.73%	1,413,574
650	Southboro Housing	3,531	204	9,390	-	-	13,125	14,514	-9.57%	12,877
660	Spencer	150,285	503,924	-	-	-	654,209	617,637	5.92%	641,861
670	Spencer-East Brookfield Regional	94,949	344,337	20,272	3,480	-	463,038	428,301	8.11%	454,298
680	Spencer Housing Authority	3,970	29,892	-	-	-	33,862	24,779	36.66%	33,223
690	Sterling	183,910	550,732	-	11,958	-	746,600	693,627	7.64%	732,508
700	Sterling Housing Authority	2,877	4,145	-	-	-	7,022	4,959	41.60%	6,889
710	Sturbridge	263,250	686,375	-	54,494	-	1,004,119	890,188	12.80%	985,166
720	Sutton	179,474	684,732	-	-	-	864,206	870,870	-0.77%	847,894
730	Tantasqua Regional	151,880	361,474	-	-	-	513,354	459,944	11.61%	503,665
740	Templeton	112,217	493,789	18,335	-	-	624,341	682,149	-8.47%	612,557
750	Templeton Housing Authority	2,860	13,086	18,184	-	-	34,130	39,350	-13.27%	33,486
760	Upton	62,262	360,741	-	-	-	423,003	446,238	-5.21%	415,019
770	Uxbridge	237,619	1,131,797	63,202	-	-	1,432,618	1,300,786	10.13%	1,405,578
780	Uxbridge Housing Authority	10,800	37,335	-	-	-	48,135	36,832	30.69%	47,226
790	Wachusett Regional	459,355	851,853	48,445	-	-	1,359,653	1,298,737	4.69%	1,333,990
800	Warren	56,690	164,062	45,016	-	5,810	271,578	223,463	21.53%	266,452
810	Warren Water District	4,022	7,050	-	-	-	11,072	7,229	53.16%	10,863
820	Westboro	574,642	2,460,953	-	30,275	-	3,065,870	2,594,728	18.16%	3,007,999
825	Westboro Housing Authority	4,097	19,267	4,321	-	-	27,685	24,496	13.02%	27,162
830	West Boylston	236,791	658,014	51,279	-	-	946,084	904,774	4.57%	928,227
835	West Boylston Housing Authority	515	8,887	-	-	-	9,402	8,007	17.42%	9,225
840	West Boylston Water District	3,611	37,826	-	-	-	41,437	48,322	-14.25%	40,655
850	West Brookfield	79,850	134,868	-	-	-	214,718	232,198	-7.53%	210,665
860	Westminster	132,898	527,495	-	4,239	-	664,632	528,022	25.87%	652,087
870	Winchendon	241,956	951,039	51,427	-	-	1,244,422	1,130,367	10.09%	1,220,934
880	Winchendon Housing Authority	11,223	53,921	4,024	-	-	69,168	52,249	32.38%	67,862
Total		9,293,514	32,534,944	1,264,642	247,948	5,810	43,346,858	40,135,980	8.00%	42,528,686

Worcester Regional Retirement System  
Actuarial Valuation as of January 1, 2014